

Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Mulberry Creek

Waterbody Segment at a Glance:

County: Bates
Nearby Cities: Amsterdam, Amoret
Length of impairment: 8 miles
Pollutant: Sulfate
Source: Mulberry Creek reclaimed coal mined lands

Note: Proposed for deletion from 2002 303(d) list.

TMDL Priority Ranking: Low



Description of the Problem

Beneficial uses of Mulberry Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life and Human Health associated with Fish Consumption

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

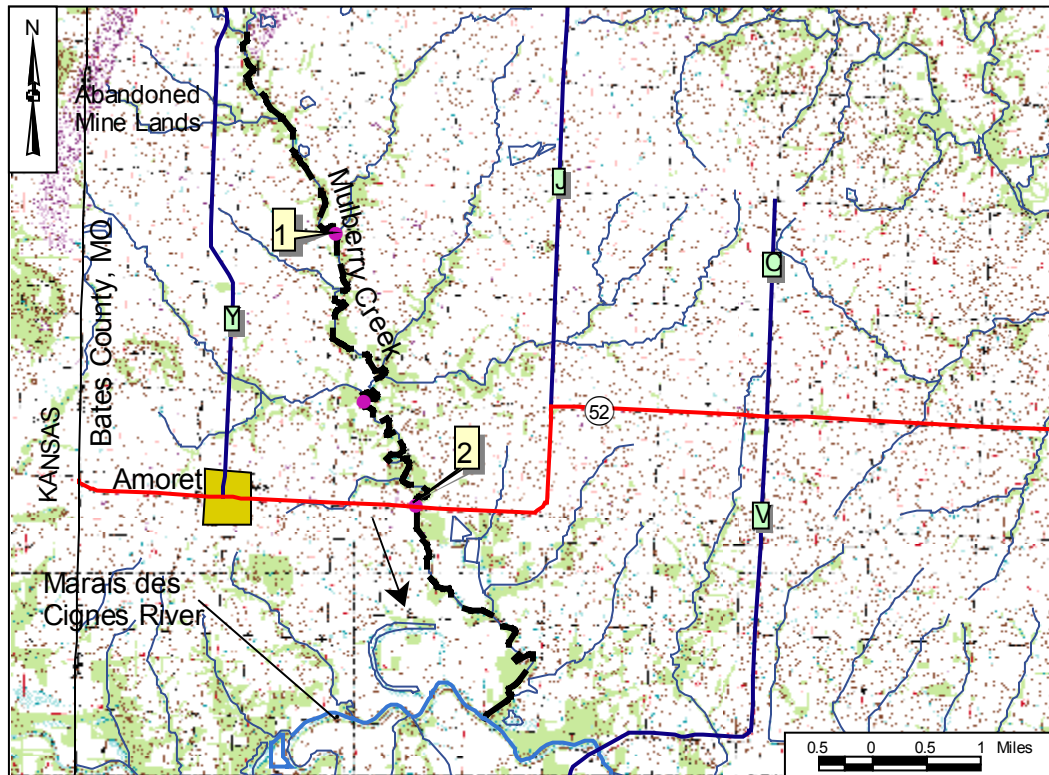
- Sulfate and chloride are linked together in Missouri's Water Quality Standards, 10 CSR20-7.031 (4)(L)1. There it states that the concentration of chloride plus sulfate shall not exceed 1000 milligrams per liter (mg/L) for protection of aquatic life.

Sulfide minerals, commonly found in coal and the surrounding rock, oxidize when exposed to the air and are subsequently dissolved by groundwater. In many past coal mining areas, this weathering process results in large amounts of sulfate dissolved in groundwater and in surface waters draining these mined lands. Freshwater aquatic life cannot tolerate large amounts of dissolved substances in water. The Missouri water quality standard for dissolved substances is 1000 mg/l of sulfate plus chloride. Levels of chloride in Missouri streams is typically much less than 100 mg/l, so that most dissolved substances problems are related to high levels of sulfate.

Mulberry Creek was originally placed on the 303(d) list based on conductivity measurements made in the early 1990s, which are closely correlated with sulfate and chloride levels in the water. Nine sets of observations of sulfate and chloride levels have been made at two locations

in Mulberry Creek during the last two years. The samples show an average sulfate plus chloride concentration of 275 and 283 mg/l at these two sampling sites, well under the 1000 mg/l water quality. Mulberry Creek is proposed for deletion from the 2002 303(d) list.

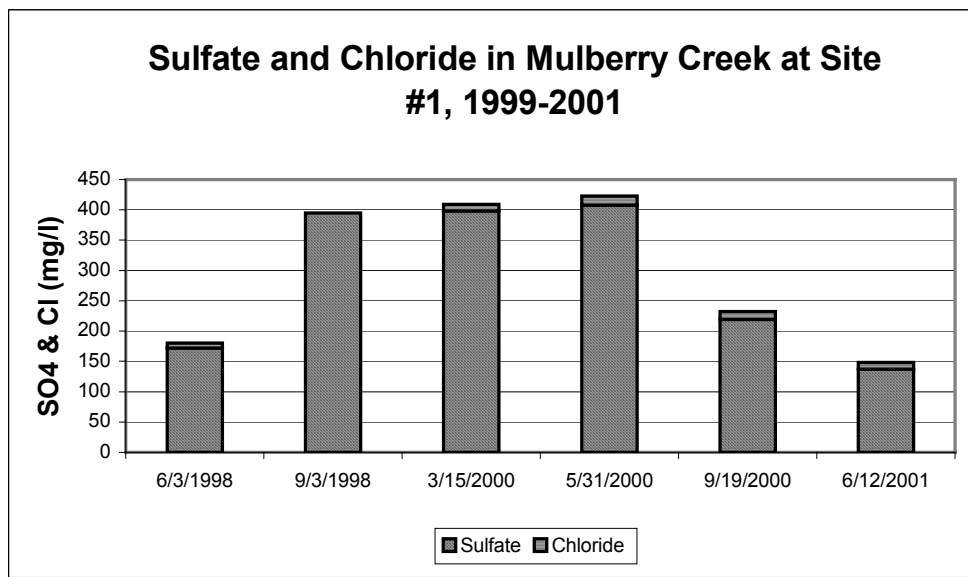
Map of Mulberry Creek Abandoned Mine Lands, Bates County Showing Sampling Sites



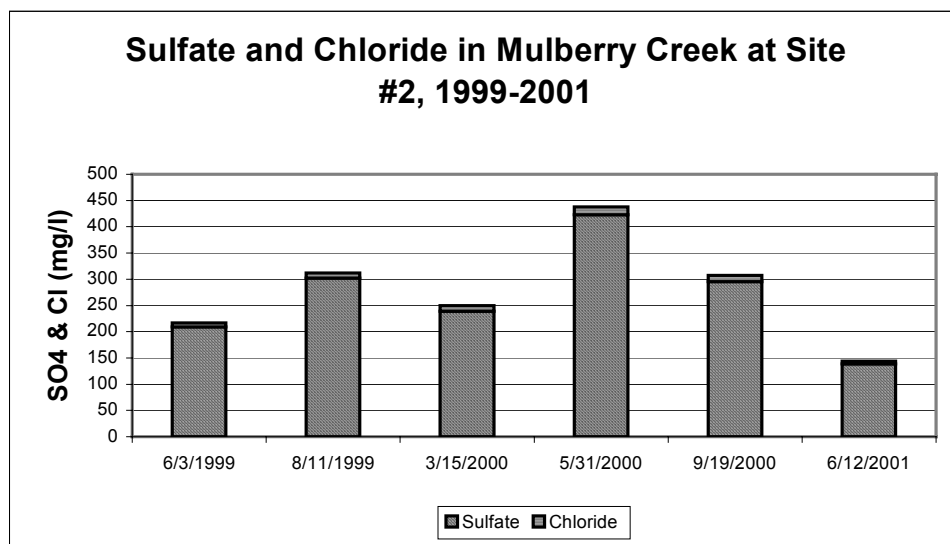
--- Impaired Section → Direction of Flow

Sample Site Index

- 1 – Mulberry Creek 0.1 mile below abandoned mine land
- 2 – Mulberry Creek at Highway 52



Source: Missouri Department of Natural Resources



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For more information call or write:

Missouri Department of Natural Resources

Water Pollution Control Program

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